MAT JOURNALS
Journal of Data Mining and Management
e-ISSN: 2456-9437
Volume 4 Issue 2

Data Analysis as an Online Tool

Akash Mehta[1], Bhanu Datta[1], Biswajit Saha[1], Deepthi Viswanathan[1], Sahana M.P[2]
[1]UG Students, [2]Assistant Professor
[1,2]Department of ISE, DSCE, Bangalore, Karnataka, India
Email: *sahana0393@gmail.com*
DOI: *http://doi.org/10.5281/zenodo.3335927*

Abstract

The emergence of Data analysis and Internet of Things (IOT) has now established a foundation for representing and storing data from domains ranging from smart devices to smart cities. The data collected using sensor from IOT has been made available to the public and has helped a huge number of consumers of data to utilize such data sets for several applications starting from scientific experimentation and modulation to improving commercial activity forbusinesses.Following this has resulted in the requirement for the developing data analysis tools that ease the use for customers and allocating the most constructive tools for a problemstatement.To this end, we attempt to introduce data analysis tool as a web service, which empowers the consumer to make a simple HTTP request for processing data over the internet. Hence, by developing such tools as a web service, we signify the prospective of such a system to support both the progressive and beginner level of data consumer. Further, this work provides an example of the suggested tool on data available publicly, extracted from the day to day trafficdata.Data analysis has reformed the collection of data from day to day real life activities, hence validating a bunch of new web technologies introduced to as smart objects toappear.These objects can be utilized to improve consumer's experience when initiating an interaction with a service. Certainly, a fixed example of huge IoT systems with authorization to enormous quantities of budding useful Data for data consumers is smart cities with traffic analysis.

Keywords: *Data analysis, Internet of Things (IOT), web service, data set, datavisualization.*

INTRODUCTION

These paper discuses about Data mining using IOT. Data mining is the process of diving deep into a large data quantity to extract usefuldatapoints and patterns**.** The access to data analysis is to capture and store large sets of data, has resulted in the availability of huge amount of information for any data consumer.Internet of Things (IOT) is a system of interrelated devices composing ofcomputing

Devices, mechanical and digital machines that are provided with unique identifiers (UID'S) and ability to transfer over a network.This has resulted in the need for both data analysis and visualization methods. Where such data consumersrange from quantitative researchers familiar with advanced data analysis tools to consumers with limited experience. We seek to introduce the concept of data analysis as a web service, which benefits both the advanced and beginner data consumer.

In particular, a specific example of large scale data mining tool analysis systems with access to large quantities of potentially useful data for data consumers are traffic analysis of smart cities. Where the concept of smart cities have arisen from the need to exploitdigitalTechnology in order to address urban challenges such as traffic congestion and environmental pollution. While the collection of data by various city departments and services exists, these are often proprietary and the

infrastructure for accessing data from these different data sources is often unavailable; owing to the lack of interoperability, information between the relevant technologies (that is the infrastructure and database storage ofdata).

EXISTINGSYSTEM

Most of the projects do not offer data analytics (that is both data analysis and visualization) or decision making systems where such a project has arisen in order to provide a unified data collection and decision making platform. By providing the relevant infrastructure for the open access of data, such projects seek to address the afore mentioned urban challenges.

Where such methods enable the user with limited experience to maximize the value of information extraction from their data sets. In particular the following works have focused on developing purpose built software for data analysis: the work is developed in a JavaScript based machine learning/data mining user interface for processing datasets.

However, the download and install concept for data analysis tools has a fundamental drawback; that is such tools would require regular software updates in order to incorporate the latest tools and techniques for data analysis. A need for a tool that wouldn't require regular updates arises.

To this end, this work seeks to introduce a web based system that enables data analysis (where this includes pre-processing methods such as filtering and machine learning algorithms) so as to benefit both the novice and advanced data consumer.

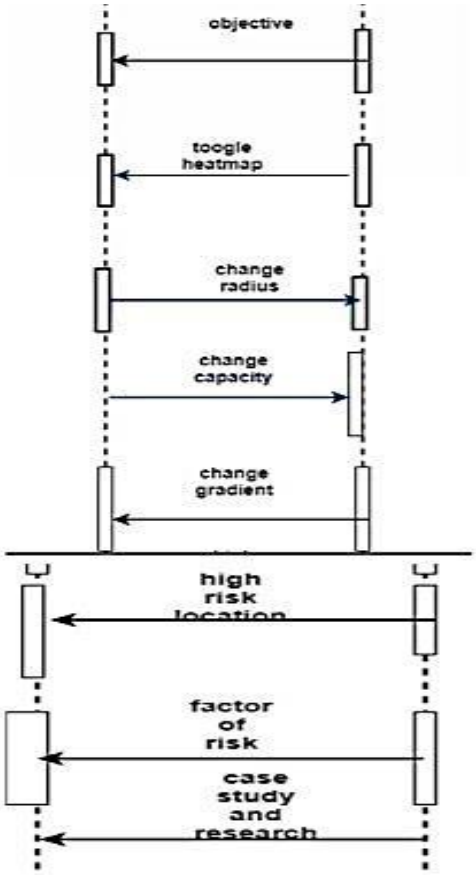

Figure 1: *Proposed Scenario.*

PROPOSED SYSTEM

As said earlier existing data analysis tools offer systems as software that requires the user/data consumer to download the product. However, such systems may require the user to learn a domain specific language (such as Python and R) for the use of such systems, while also requiring software updates so as to access the latest data analysis techniques.

That is why we provide open access data analysis tool for consumers as a web service, which provides the users the necessary tools that would enable them to analyze and obtain useful information without having an in-depth knowledge ofit.

So, our work presents a web service which is done in JavaScript.

In our approach, we have focused on traffic collision data which is composed of multiple sections:

- The Map Visualization section provides a whole picture of traffic collision.
- High risk location analysis.
- Factors of risk identification analysis and conduct analysis on all aspect of the collision factors.

The methodology we applied on this project:

Visualization Methodology

We used interactive, computer-supported, visual representations of data to amplify cognition and to find out what are the insights in the original collision dataset.

Information Visualization: graphical representations, pattern recognition, and other cognitiveskills.
Data Visualization: represents quantitative data, information graphics and statistical graphics from R and Tableau data analysis software.
Concept Visualization: Mind map, layer chart.
Metaphor Visualization: delivery insights in dataset through key characteristics.

We will now provide an overview to utilize the proposed the web service:

1. We download the traffic collision dataset for a region using a heat map to use it for our visualization. This will be a csv file.
2. Next we load our dataset and visualize all the high risk locations.
3. Also, analyze various factors for collision and provide reports for it to give more insights into it.

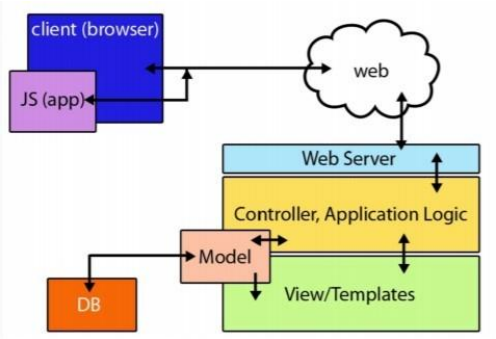

Figure 2: *JavaScript Architecture.*

CONCLUSION

In this paper, we have worked on a data analysis web service tool that enables the data consumer to have access to a range of algorithms and codes for the research and analysis of traffic sensor data. Extending the idea, web service implemented in JavaScript requires the dataset from the IOT devices captured and then the consumer can access the service via simple HTTP requests.

Thus, providing data analysis over the internet in a hassle free manner, a capability that would enable the proliferation of data analysis algorithms for a wide range of users with or without any expertise, thus, working great for both experts and beginners.

Thereby, enabling more efficient identification of effective algorithms for the processing of a given data set.

Future advancements will mainly cater on working on extending and improving the parameters of the work. And also to initiate optimal data analysis techniques that will be made available, along with improving and work on a refined documentation.

REFERENCES

1. S. De, T. Elsaleh, P. Barnaghi, and S. Meissner, "An internet of things platformfor real-world and digital objects," Scalable Computing: Practice and Experience, vol.13, no. 1, pp. 45–48, 2012.16 p.
2. B. Firner, R. S. Moore, R. Howard, R. P. Martin, and Y. Zhang, "Poster: Smart buildings, sensor networks, and the internet of things," Proceedings of the 9th ACM Conference on Embedded Networked Sensor Systems, pp. 337–338, 2011.
3. ICity Consortium. (2014, June). [Online]. Available: h ttp://www.icityproject.eu/.
4. B. Cheng, S. Longo, F. Cirillo, M. Bauer, and E. Kovacs, "Building a big data platform for smart cities: Experience and lessons from santander," 2015 IEEE International Congress on Big Data, pp. 592–599, 2015.
5. D. Puiu, P. Barnaghi, R. Tones', D. K ¨ umper, M. I. ¨ Ali, A. Mileo, J. X. Parreira, M. Fischer, S. Kolozali, N. Farajidavar, F. Gao,T. Iggena, T. L. Pham, C. S.Nechifor, D. Puschmann, and J. Fernandes, "Citypulse:Large scale data analytics framework for smart cities," IEEE Access, vol. 4, pp. 1086–1108, 2016.
6. TN Srinivasan, Data base for development analysis Data base for development analysis: An overview.
7. Nada Elgendy and Ahmed Elragal. Big Data Analytics: A Literature Review Paper.
8. Jing Deng Richard Han Shivakant Mishra. Countermeasures against Traffic Analysis Attacks in Wireless Sensor Networks, December 2004.
9. Jing Deng Richard Han Shivakant Mishra. Decorrelating Wireless Sensor Network Traffic to Inhibit Traffic Analysis Attacks. April 2006, pp. 159-186.
10. Honghui Dong, Mingchao Wu. Traffic zone division based on big data from mobile phone base stations. Volume 58, Part B, September 2015.
11. Jia Wan; Yuan; Qi Wang. Traffic congestion analysis: A new Perspective.
12. Himanshu Shekhar, Shankar Setty, Uma Mudenagudi. Vehicular traffic analysis from social media data, 03 November 2016.

Cite this article as: *Akash Mehta, Bhanu Datta, Biswajit Saha, Deepthi Viswanathan, & Sahana M.P. (2019). Data Analysis as an Online Tool. Journal of Data Mining and Management, 4(2), 21–24. http://doi.org/10.5281/zenodo.3335927*